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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/786,742	09/14/2001	Heinrich Jurgensen	P010032	5122
26574	7590	04/20/2004	EXAMINER	
SCHIFF HARDIN, LLP PATENT DEPARTMENT 6600 SEARS TOWER CHICAGO, IL 60606-6473			MENEFE, JAMES A	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/786,742

Applicant(s)

JURGENSEN, HEINRICH

Examiner

James A. Menefee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 337-421 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 409, 410 and 417-419 is/are allowed.
- 6) ☒ Claim(s) 337-407 and 411-416 is/are rejected.
- 7) ☒ Claim(s) 408, 420 and 421 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/3/2003 has been entered. Claims 409 and 417 are amended; claims 337-421 are pending.

Claim Objections

The following claims are objected to because of the following informalities. Note that it is not clear whether the informalities are due to the poor quality of the faxed copy, or if they are indeed present in the claims. It is requested that the Applicant's representative check his copy of the claims to see if these informalities are present, to fix them if necessary, and provide a clean copy of the claims not including these informalities.

In claim 340 line 2, "s cond" should read "second".

In claim 346, "\" should be removed from the end of the claim.

In claim 357 line 2, "interchang abl" should read "interchangeable".

In claim 363 line 1, "las r" should read "laser".

In claim 405 line 1, "Th" should read "The".

In claim 409 line 7, "imping" should read "impinge", and "surfac" should read "surface".

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In claim 417 line 9, "surfac" should read "surface", and in line 10 "nergy" should read "energy".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 337-342, 356, 383, 385, 403, 411-416 are rejected under 35 U.S.C. 102(b) as being anticipated by Pernick (US 5,363,233). Pernick discloses the claimed invention as follows. See Fig. 3:

Regarding claims 337, 403, and 411-416, Pernick discloses a laser radiation source comprising at least one diode-pumped fiber laser 104, each fiber laser comprising at least one output. The outputs are arranged in a first ordering pattern, and the laser beams emerging from the outputs are shaped by the various lenses such that they impinge on a surface in a second ordering pattern.

Pernick does not disclose anything about the "engraving cups". The Examiner contends that the added limitations are merely an intended use of the device, or, in the case of claim 403, an intended result of the method. It has been held that if a prior art structure is capable of performing the intended use, then it meets the claim. See, e.g., *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). The emerging laser beams disclosed by Pernick

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will necessarily have a power and energy density high enough to be capable of eroding a material, and thus forming cups.

Regarding claim 338, the fiber lasers 104 are arranged in planes above one another.

Regarding claim 339, the outputs of the fiber lasers are arranged in a bundle to form the first ordering pattern.

Regarding claim 340, the laser beams are combined and bundled such that processing points on the surface 26 lie next to and above each other.

Regarding claim 341, the laser beams are combined and bundled such that the laser beams generate a single point on surface 34.

Regarding claim 342, the outputs of the fiber lasers are aligned.

Regarding claim 356, all of the included lenses are transmissive, and therefore may be called "transmission units".

Regarding claim 383, the lasers are continuous wave lasers and they are capable of being modulated as claimed. It has been held that the recitation that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

Regarding claim 385, this claim constitutes intended use of the device. The intended use of a device is not germane to the patentability of the device itself, therefore this claim is not given patentable weight.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 343-355, 357-382, 384, 386-402, and 404-407 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pernick. Pernick discloses the limitations of the claims as shown above, but does not disclose the following.

Regarding claims 343 and 404, it is not disclosed that an optical unit is directly connected to the fiber output. However, it is well known that the output ends of fibers may be ground so that they include optical lenses. It would have been obvious to one skilled in the art to grind the end of the fiber so that it includes a shaping lens in order to reduce the amount of items required in the cavity, as is well known.

Regarding claims 344-345 and 405, it is not disclosed that the laser beams should be modulated. Modulation of laser beams is well known in the art, enough so that an entire subclass, 372/26 is devoted to it. It would have been obvious to one skilled in the art to modulate the laser beams so that things such as amplitude, frequency, or phase characteristics may be modified as necessary, as is well known.

Regarding claims 346-348, these claims merely detail well known means of modulation. As modulation is shown to be obvious, it would have been an obvious engineering design choice to use any of the modulation means as claimed.

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Regarding claim 349-351, if for example the lens 150 were taken as the optical unit, then the collimation lens ground into the fiber as shown above could be interpreted as terminators as claimed.

Regarding claim 352, it is not disclosed that one of the fibers may be a passive fiber. However, passive fibers are well known in the art. It would have been obvious to one skilled in the art to use a passive fiber because these provide spectral control of the beam, as is well known.

Regarding claim 353, if the optical unit, for example collimation lens 120, is ground into the fiber, it is inherent that the lens will necessarily include radiation entry and exit points with an optical unit, the lens, between said points.

Regarding claim 354, it is inherent that if the cavity includes a modulation device, as deemed obvious above, then any optical unit in the cavity will be either in front of or behind said modulation device.

Regarding claim 355, if the optical unit, for example collimation lens 120, is ground into the fiber, then such a unit will necessarily reduce the spacing of symmetry axes of the laser beams.

Regarding claims 357-360, these claims are merely detailing limitations of the optical unit that are already known. Any known optical unit may be substituted into the system as a matter of obvious engineering design choice, and thus these types of optical unit may be used in the system depending on how the shaping of the beams is desired to occur.

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Regarding claims 361-368, it is not disclosed that there is further a system for keeping unwanted radiation away from the processing surface, the system keeping radiation away by the means as claimed.

Regarding claims 369-373, it is not disclosed that the system is protected from contaminants by the means as claimed. It is well known in laser systems to protect the system from contaminants. Further, the specific means used are also well known. It would have been obvious to one skilled in the art to use any of these means for protecting the system from contaminants because contaminants may degrade the performance of the system, as is well known.

Regarding claims 374-381, there is not disclosed a removal of an eroded portion in the system. However, this would fall into the removal of contaminants, and this as well as any known means of removal as claimed have been deemed obvious above.

Regarding claim 382, there is not disclosed a control circuit for regulating the beams. However, adding control circuits to laser systems is extremely well known. It would have been obvious to one skilled in the art to include a control circuit in order to control things such as the output power of the laser beams.

Regarding claim 384, the means of pumping are not claimed, however these types of laser are well known, and it would have been obvious to one skilled in the art to choose this type of laser as the means of pumping as a matter of engineering design choice.

Regarding claim 386, 395, and 407, the limitations of the claim are disclosed except for the cooling system, the controller, the material carrier, and the unit for generating relative movement. All of these objects are well known. The controller was shown obvious in the

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rejection of claim 382 above. It would have been obvious to one skilled in the art to include a cooling system because it is known that changes in temperature affect the outputs of lasers, therefore one would want to be able to control the temperature so as to have control and stabilization of the laser output, as is well known. It would have been obvious to one skilled in the art to use a carrier to hold the processing surface so that it may easily be moved in and out of the system as needed. It would have been obvious to one skilled in the art to include a means for providing relative movement so that proper alignment of the beams may take place, as is well known. Also, see the rejection of claim 337 above for the limitations regarding the cups.

Regarding claims 387-394, 396, and 397 the limitations of these claims correspond to those of claims 338-345, 374, and any of 375-379, and thus the rejection would be the same as for those claims.

Regarding claim 398, it was shown above to be obvious to protect parts of the system from contaminants, therefore it would have been obvious to one skilled in the art to include the parts in a housing, which will do just that, as is well known.

Regarding claims 399-401, the shape of the material carrier is not critical, and it would have been an obvious change in shape to use any of the shapes as claimed.

Regarding claim 402, this constitutes the intended use of the device. The intended use of a device is not germane to the patentability of the device itself, therefore this claim is not given patentable weight.

Regarding claim 406, this constitutes the intended use of the generated laser beams. The intended use of the beams is not germane to the patentability of the method of generating the beams, therefore this claim is not given patentable weight.

Allowable Subject Matter

Claims 409-410 and 417-419 are allowed pending resolution of the informalities of the claim objections above.

Claims 408, 420, and 421 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

There is not taught or disclosed in the prior art an apparatus or method for engraving cups in a processing surface including arranging a plurality of fiber lasers in a first ordering pattern, shaping and aligning the beams into a second ordering pattern, and impinging on the surface with a power and intensity sufficient to engrave cups in the processing surface, where the surface is copper.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (571) 272-1944. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

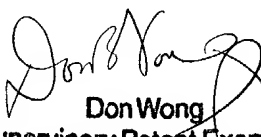
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JM

April 9, 2004



Don Wong
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